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U S NAVY RESPONSE TO MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION COMMENTS TO DRAFT SAMPLING AND ANALYSIS PLAN (FIELD SAMPLING PLAN AND QUALITY ASSURANCE PROJECT PLAN) MUNITIONS CONSTITUENTS REMEDIAL INVESTIGATION OF SITE 12 EOD AREA NAS BRUNSWICK ME
9/13/2012
TETRA TECH

RESPONSE TO MEDEP COMMENTS DATED JULY 11, 2012
DRAFT SAMPLING AND ANALYSIS PLAN, MUNITIONS CONSTITUENTS REMEDIAL INVESTIGATION OF SITE 12 EOD AREA DATED MAY 2012
FORMER NAVAL AIR STATION BRUNSWICK, MAINE

Note that where the comment response provides revised text, text additions are shown in bold italics and deleted text is shown as strikethrough.

General Comments:

1. **Comment:** MEDEP sent comments and has received appropriate responses (June 18, 2012) on the geophysical portion so that portion of the SAP could be implemented and data can be used to refine the design of the groundwater investigation. Until the data from the geophysical survey and other preliminary data are available MEDEP withholds its approval of whether 10 feet for shallow groundwater is adequate.

   Response: Acknowledged. Based on historical trenching and the location of the pond and nearby wetlands, surficial groundwater is expected to be found in the first 10 feet; actual conditions will be established in the field. Of note, subsequent to MEDEP submittal of subject comments, the bedrock fracture trace analysis report was issued and because numerous fractures were encountered, a decision was made to proceed with monitoring well installation and defer a decision on the need and scope of geophysics until after monitoring well boring logs and analytical results are evaluated and discussed with EPA and MEDEP.

2. **Comment:** Please add daily updates to be sent to MEDEP and other stakeholders via email similar to what was done at the Quarry to keep us apprised of what is happening in the field.

   Response: as per Conference Call of 9/19/12. Field work summaries will be provided on a timely basis when noteworthy information is available. At a minimum, summaries will be provided for each 5-day field work shift and also when important information becomes available (e.g., boring log completed for a given monitoring well) and more frequent updates will be provided if requested by USEPA/MEDEP. The schedule of project field updates as well as specific notifications regarding SAP amendments, changes in schedule, MEC Finds, etc. will be completed per Worksheet #6 as updated based on Comments 7 through 10 below.

3. **Comment:** Please provide MEDEP two week's notice prior to implementing the SAP.

   Response: Acknowledged.

4. **Comment:** MEDEP has not provided specific comments on the risk assessment portions of the workplan but will provide comments prior to validation of the data.

   Response: Acknowledged.

5. **Comment:** Although MEDEP did not add specific comments to Worksheet #18, if changes as recommended in our comments are implemented this table will need to be updated to reflect numbers of increments and samples.

   Response: Acknowledged. Worksheet #18 will be revised as necessary, based on MEDEP (and EPA) comments.

Specific Comments:

6. **Comment:** Worksheet (WS) 3, Distribution List:
   a.) Please update Paul Burgio's phone number to 215-897-4903 on this worksheet and any other worksheet that contains his phone number.
   b.) Please be sure to include the information for Field Operations Leader, Driller, and Surveyor in the final workplan for this worksheet and any other worksheet requiring this information.

   Response:
   a.) Agree. The SAP will be revised throughout to include the phone number above.
   b.) This information will be provided via e-mail with the 2 week notification as per General Comment #3.

7. **Comment:** WS 6, Communication Pathway, SAP Amendments, Procedure:

   a.) The procedure for making amendments to the workplan does not appear to include review and approval by regulators. Please correct.
   b.) With daily updates, MEDEP feels that 2 business days is more appropriate. Please correct.

   Response:
   a.) The SAP will be revised to include regulatory review for SAP Amendments
   b.) The SAP will be revised to allow 2 business days for notification of SAP Amendments.

8. **Comment:** WS 6, Communication Pathway, Changes in the Field Work Schedule, Procedure: Seven business days is too long. With daily updates changes to the schedules should be available within 2 business days. Please revise.

   Response: The SAP will be revised to allow 2 business days for notification of Field Work Schedule Changes.

9. **Comment:** WS 6, Communication Pathway, Issues in the field that result in changes in scope..., Procedure: The procedure for making scope changes does not appear to include review and approval by regulators and seven days is too long. MEDEP feels with daily updates that 2 business days is more appropriate. Please correct.

   Response: The SAP will be revised per Comment 7 above to allow for regulatory review of SAP Amendments and 2 business days for notification of Issues in the field that result in changes in scope.

10. **Comment:** WS 6, Communication Pathway, Munitions and Explosives of Concern (MEC)...Finds, Procedure: The procedure for notifying the Project Team within seven days is too long and with daily updates, 2 business days is more appropriate. Please correct.

    Response: The SAP will be revised to allow 2 business days for notification of MEC Finds.

11. **Comment:** WS 10, Site History and Background, Range/Site History, Munitions/Release Profile, Associated MC (para 2) and Associated Hazardous Waste Constituents: These two sections indicate that no hazardous waste source items were found at the site, however the surface clearance work located two drums at the site. The presence of drums indicates at least the potential for hazardous constituents to be present at the site. Please note this finding in the text.

    Response: There is no indication that the two drums were associated with hazardous constituents; however, this finding will be noted in this section of the text. If the RI results for groundwater and sediment indicate hazardous constituents are of concern, the CSM will be revised in the future.

12. **Comment:** WS 10, Land Use and Exposure Profile, Potential Future Land Use, and Potential Future Land Use Related Activities: "Potential future land use is anticipated as the Brunswick Naval Air Station (BNAS) Conservation District) Natural Area." - This should be updated to reflect the potential civilian use of the property. For example, the land use plan developed by the Midcoast Regional Redevelopment Authority shows Site 12 as a Natural Area. Please revise as necessary.

    Response: Potential Future Land Use will be revised to indicate use as a Conservation District (Natural Area). Also added: "***Civilian use of the property is also a potential.***"

    Potential Future Land Use Related Activities will be revised to read: "Potential future land use-related activities in the ~~BNAS~~ Conservation District (Natural Area) will include light recreational activities ***by civilians*** (walking, hiking, and bird watching)."

13. **Comment:** WS 11, Section 11.2, Information Inputs:

    a.) Contaminant Concentrations in Soil, Sediment...: "Estimates of contaminant concentrations in soil..." – Please add that the data is needed in soil that was potentially bladed into the pond in two areas, to clarify why soils are a media of interest in the pond. (Also in para 2, please check for redundancy in sentence 2.)
    b.) Sample Location Data, 1st sentence: In addition to the monitoring wells, please add the surveying of one or more staff gauges in the pond to measure pond water elevations.
    c.) Project Screening Levels, Bullet 1 & 2: Non-detects need to be reported at the Limit of Quantitation (LOQ). The analytical methods can report estimated detects between the LOQ and the method detection limit with a "J" flag but cannot report non-detects below the LOQ.
    d.) Background Data & Appendix D: The 95% UCL for the background data should be used to compare to the Incremental Sampling Methodology (ISM) data. For site ISM data

where 3 or more values are obtained a 95% UCL can be calculated using methods (likely Chebyshev) recommended in the ITRC Incremental Sampling Methodology 2012 guidance document. Otherwise comparison of the individual ISM values is acceptable. Please revise.

Response:

a.) Worksheet 11 Section 11.2, Contaminant Concentrations in Soil, Sediment, and Groundwater will be revised as follows.

"Estimates of contaminant concentrations in soil at discrete locations ***near the pond*** are also needed to provide information on potentially elevated concentrations for surficial and subsurface soil in ***two*** areas, ~~near the pond~~ ***where historical aerial photographs indicate soil may have been bladed into the pond.***"

b.) Worksheet 11 Section 11.2 will be revised as follows.

"***For g***~~G~~roundwater monitoring wells ***and one or more staff gauges located around the pond,*** horizontal location and vertical elevation coordinates must be surveyed by a licensed land surveyor."

c.) Worksheet 11 Section 11.2 , Project Screening Levels, will be revised as follows:

- "All concentrations less than ***Limits of Detection (LODs)*** ~~Detection Limits (DLs)~~ will be classifies as non-detects and will be reported as DL values with a "U" qualifier."

- Concentrations between the ***LOQ and*** DL ~~and LOQ~~ will be reported as estimated values with a "J" qualifier."

d.) as per Conference Call of 9/19/12. Where 3 or more ISM sample results are available for a given area of the site 95% UCLs will be calculated for comparison to background data using the 95% UCL calculator for ISM data provided in Section 4 of the 2012 ITRC Incremental Sampling Methodology guidance. In addition to the 95% UCL, the mean will also be evaluated.

The Background Data paragraph of Section 11.2 will be revised to read as follows:

"Background Data: Background concentrations of metals and polycyclic aromatic hydrocarbons (PAHs) are needed to differentiate between site-related chemicals and those chemicals occurring naturally or through anthropogenic inputs. Therefore, ~~S~~***s***ite data will be compared to background value lines of evidence, such as Maine's Remedial Action Guidelines (RAGs) Appendix 1 and 2 tables and/or site-specific facility background concentrations such as the concentrations identified in the Background Study Report for Naval Air Station Brunswick~~,~~ (Tetra Tech, 2012). ~~To compare site ISM samples to site-specific facility background data the background data will be averaged. Thus the background data and the ISM site samples both represent an average concentration. The full comparison methodology is presented in Appendix D.~~ ***For areas of the site being compared to background data where 3 or more ISM sample results are available a 95% UCL will be calculated on the site ISM data using the 95% UCL calculator for ISM data provided in Section 4 of the 2012 ITRC Incremental Sampling Methodology guidance for comparison to background data. In addition to the 95% UCL, the mean will also be evaluated.***"

Section 1.1.2 of Appendix D, 2nd paragraph, will be revised to read as follows:

"To first compare site ***ISM*** ~~MIS~~ samples to site-specific facility background data ~~the background data will be averaged .....consistent with background.~~ ***the 95 percent upper confidence limits (UCLs) will be calculated on site ISM data for those areas of the site being compared to background that have at least 3 ISM samples using the 95% UCL calculator for ISM data provided in Section 4 of the 2012 ITRC Incremental Sampling Methodology guidance. If any of the ISM 95% UCL results for a given COPC are greater than the corresponding 95% UCL of the site-specific facility background then that COPC will be considered greater than background. If a 95% UCL for a COPC is less than or equal to the 95% UCL of the site-specific facility background for that same chemical then that COPC will be considered consistent with background.***

An additional comparison will then be conducted. For any COPCs identified based on the site-specific facility background comparison, the site 95% UCLs will subsequently be compared to the corresponding MEDEP 95% UCL background value. Results of this secondary comparison will be discussed in the Uncertainty Analysis and results will be considered during future risk management decision discussions with regulators."

14. **Comment:** WS 11, Section 11.3, Boundaries of the Study, para 3: "Surficial groundwater (top 10 feet) is a media of interest..." - See comment 1 above.

Response: Worksheet 11, Section 11.3 will be revised as follows.

"Surficial groundwater (***presumed to be the upper-most top 10 feet of groundwater found within*** ~~top~~ 10 feet ***of the ground surface***) is a media of interest for the entire site and the area representing the greatest potential to be contaminated because of site operations is the region of greatest interest for contamination associated with Site 12. ***Actual conditions will be established in the field.***"

15. **Comment:** WS 11, Section 11.3.1, Decision Units:

a.) DU1: Please add the depths of the surface soil samples and the shallow surface soil samples to the text.

b.) DU2: "The media of interest for DU2 is surface soil (0-3 inches bgs) within the Overall Berm Area (DU2)." - The focus on the upper surface soil is acceptable for the majority of the site based on the conceptual site model (CSM) and the safety factors related to the UXO surface clearance, however the "Report for Munitions and Explosives of Concern, Time Critical Removal Action at Site 12 EOD Areas (March 2012) reports items identified as Munitions and Explosives of Concern (MEC), Material Potentially Poising Explosive Hazard (MPPEH), and Material Documented As Safe (MDAS) were found in trenches 7, 8 and 10 deep as 42 inches below ground surface (bgs). Therefore it is unclear why surface soil is the only media of interest and why subsurface soil is not being investigated in DU2. Without subsurface soil sampling the stated objective of determining "if residual contamination related to the historical use of the site is present at levels of concern" cannot be met.

c.) DU3: "DU3 is expected to have similar concentrations throughout." – Please provide the basis for this statement.

d.) DU-5: The pond DU should not include the areas of soil west of the access road. Based on potential future use and likely exposure risk it is more reasonable to include grids K8 and L8 in DU4. Also see comment 22.h.4 below.).
e.) DU6: "The groundwater media of interest at these sites is the top 10 feet of the first occurrence of groundwater that may have been impacted ..." Does the Navy mean 10 feet bgs or 10 feet below the water table? Please clarify and see comment 1 above.

Response:

a.) DU1: Note that EPA requested that DU1 subsurface soil ISM points interval be changed from 12 to 18 inches to 3 to 18 inches and also requested that a replicate be added for the subsurface soil ISM sample (EPA Specific Comment 1). This subsurface replicate will be co-located with the first replicate of the surface ISM soil sample. Worksheet 11, Section 11.3.1, Decision Units will be revised as follows.

"The media of interest for DU1, located in the center of Site 12, are surface soil ***(0 to 3 inches bgs)*** and shallow subsurface soil ***(3 to 18 inches bgs)*** located on the inside face of the berm."

b.) DU2: Note that EPA also requested the addition of DU2 subsurface soil, as well as division of surface soil ISM sampling to inside and outside of the existing berm (EPA Specific Comment 2). Note that the revisions to address EPA comments also address MEDEP Comment 15 regarding the requested addition of subsurface soil samples; and MEDEP Comment 22d regarding DU2F ISM increment point redistribution to be both representative of the DU and provide adequate coverage. Text and associated tables and figures have also been revised to reflect the following summarization from the EPA comment response:

DU2A: DU2A will be completely revised as per Conference Call of 9/19/12. .

- Surface soil ISM: DU2A will be split into DU2A-a (inside existing berm) and DU2A-b (outside existing berm), each with 1 ISM sample of 30 increments and each with 1 replicate. Please recognize that because of numerous anomalies present, it may not be possible to collect all increments.

  The following statement from Section 14.1, Surface and Subsurface Soil Incremental Sampling will be repeated as a footnote on Table 17-1 and 17-2

  "***If a subsurface anomaly is identified by the UXO Escort, the increment location is to be moved to the nearest area clear of subsurface anomalies within the same increment grid or SU. Because the number and location of increments are dependent on following Anomaly Avoidance and numerous subsurface anomalies are expected, the number shown may not be achievable.***"

- Subsurface Soil: Four discrete subsurface soil samples will be added within the berm footprint (DU2A-a). The subsurface sample discrete interval will be determined in the field from a non-saturated depth between 1 to 5 feet bgs or until bedrock is encountered, based on visual and olfactory observations (PID). If no visual or olfactory observations indicate potential contamination, then samples will be collected from 1 to 3 feet bgs (unsaturated soil).

DU2B: Four discrete subsurface soil samples will be added within the berm footprint and evenly spaced. The depth interval will be as described for DU2A-a above.

DU2C: Four discrete subsurface soil samples will be added within the berm footprint, avoiding the wetlands area. The depth interval will be as described for DU2A-a above.

DU2D: No change, although it is acknowledged that if MC is detected in the surface soil significantly above PSLs, it will be necessary to evaluate subsurface soils.

DU2E: Four discrete subsurface soil samples will be added within the berm footprint and evenly spaced. The depth interval will be as described for DU2A-a above.

DU2F: No change to address EPA comment. However, note ISM increment points have been redistributed (the total number of increments remains the same).

c.) DU3: Worksheet 11, Section 11.3.1 will be revised as follows:

"DU3 is expected to have similar relatively uniform MC concentrations based on the distance from the Central Berm Area and expected circular pattern of kickouts. ~~MC concentrations throughout DU3 are expected to be relatively uniform and a~~ ***Also, this DU had a*** lower density of MEC/MPPEH (surface was cleared of MEC/MPPEH during the 2010-2011 TCRA). ~~DU3 is expected to have similar concentrations throughout.~~"

Note that EPA requested the division of surface soil ISM sampling (EPA Specific Comment 3). Text and associated tables and figures to reflect the following summarization from the EPA comment response, as follows:

While the Navy agrees the area may be too large for 1 ISM sample, the Navy prefers to continue with the bull's eye sampling approach. Therefore, DU3 will be split into DU3A (Intermediate Area – Inner) and DU3B (Intermediate Area – Outer). DU3A will be comprised of Grids H4, F4 (newly added grid), D4, and D7. DU3B will be comprised of Grids J7, J8, H3, and C5. One replicate sample will be collected from each of the two subareas.

d.) DU5: as per Conference Call of 9/19/12. No changes to the grid designation are warranted at this time. It is unclear what activities occurred in this area, the DU boundary was selected based on historical aerial photographs (Appendix F) that indicate a disturbance in the area west of the access road, which appears to be associated with activities at the Pond. Therefore, the sample protocol in this area should be consistent with that of the pond. However, prior to performing the risk assessment, the analytical data will be evaluated and DU boundaries may be redefined at that time based on detected concentrations. Worksheet 11, Section 11.4 - Analytical Approach will be revised as follows to document the need for evaluation of this data and determine if the area should be included in DU4 or DU5, or as an independent DU (e.g., hot spot).

"2. It is uncertain if the scraped area shown in the northeast portion of the site on historical aerial photographs should be associated with DU4 or DU5. Physically, the area is soil near the perimeter road and so would be associated with DU4; however, from a perspective of historical operations and any associated chemical contamination, the area is suspected to be more closely associated with DU5. ***If analytes from any or all of soil samples currently assigned to DU5 (Pond) are***

more similar to analytical results for DU4, then this area will be reassigned to DU4 (Outer Area) for future risk management decisions. If analytes and/or analyte concentrations are dissimilar to either DU4 or DU5 (e.g., hot spot), a new DU will be assigned."

e.) DU6: Worksheet 11, Section 11.3.1, DU6 will be revised as follows.
"The groundwater media of interest at these sites is ***presumed to be*** the ***uppermost*** top 10 feet ***of groundwater found within approximately*** **10 feet** ***of the ground surface or*** ~~of~~ the first occurrence of groundwater that may have been impacted by leaching of MC or hazardous waste from historical activities; ***actual conditions will be established in the field.***"

16. **Comment:** WS 11, Section 11.3.2, Risk Assessment Exposure Units & Appendix D: The combination of Decision Unit's (DUs) should be based upon detected compounds and needs to consider the relative importance of site related contaminants versus those compounds related to geologic or other factors. MEDEP's concern is that with such a large analyte list it would be easy to achieve the 51% criteria even if site related contaminant concentrations are very dissimilar between units. (Also see comments 29 and 30 below.)

Response: The Navy recognizes MEDEP's concern with the current methodology for making determinations to combine data from separate EUs. The methodology will be changed so that COPCs, not just chemicals analyzed, in EUs adjacent to one another are compared to determine if COPCs are similar. Next, COPC concentration data will be compared to determine if COPCs from separate EUs have similar concentration ranges as described in Section 1.2.3 of Appendix D.

The next to last sentence of Section 11.3.2 will be revised to read as follows:

"In order to combine datasets from two or more DUs into a single EU ***those datasets must have similar sets of COPCs with similar concentration ranges***. ~~at least 51 percent of chemicals analyzed in the DUs must have similar concentrations (as defined in Appendix D)~~"

17. **Comment:** WS 11, Section 11.6, Develop the Plan: The three-inch depth is shallow for central area, where trenches found items to a depth of 42 inches. Soils deeper than 3 inches may be overturned through foot traffic, all-terrain vehicle tires and freeze-thaw action. If the clearance was sufficient to allow sampling a deeper interval, then a subsurface interval is needed for DU2 and in particular DU2A and DU2E to assess concentrations in the subsurface and to meet the stated objective.

Response: Discrete subsurface soil sampling will be added to DU2 as per the response to Specific Comment 15.

18. **Comment:** WS 14, Section 14.1 Field Investigation Task Plan:

a.) Surface and Subsurface Soil Discrete Sampling:

1. The first sentence appears to be missing text or a comma/semi-colon, please revise as needed.
2. para 1: "Discrete sample collection was established for select sampling units within DU 5 (the pond) ..." For clarity, please revise to the pond and fill area or something similar. (Also see comment 15.d above.)

b.) , UXO Anomaly Avoidance, para 1: See comment 1 above regarding the depth of monitoring wells.

c.) Replicate Sample Collection, WS 18 and Figure 17-1: Bullet 1 also should note that a triplicate will be collected for the 12-18" interval, based on the description on the figure. The table in Worksheet 18, however, indicates that no replicates are planned for the subsurface soils. Please clarify the approach. Since it is known that the berms were reshaped on several occasions, it is possible the subsurface soils in the berms will have similar concentrations to the surface soils. To support evaluation of removing and disposing of the berms or leaving them in place, a replicate ISM subsurface sample is warranted.

d.) Well Surveying: The survey will also need to include the surface water gauge installed in the pond, please add this task.

e.) IDW Management:
1. Para 1: Since the excess sediment collected for sampling cannot be placed back in its original location but would have to be dropped back into the water, please containerize it along with the soil Investigation Derived Waste (IDW).
2. Para 2: Please check the last sentence in the paragraph clarity and revise as necessary.

Response: Worksheet 14, Section 14.1 will be revised as follows.

a.) "Discrete sample collection was established for select sampling units within DU 5 (the pond ***and fill area***). ***S***surface (0 to 1 foot bgs) and subsurface (1 to 5 feet bgs) soil samples will be collected in accordance with SOP-02 (Soil Sampling, Appendix A).

b.) In this instance anomaly avoidance will be completed to a maximum depth of 10 feet based on the maximum depth at which bedrock and/or munitions related items are expected to be found and is not restricted based on any assumptions regarding the depth of the proposed wells or the location of groundwater below the ground surface. Worksheet 14, Section 14.1, UXO Anomaly Avoidance, para 1 will be revised as follows:

"For soil borings and installation of monitoring wells a downhole metal detector such as a MG230 or equivalent, will be used to screen the borings in 2 foot intervals prior to advancing the drilling equipment, to a maximum depth of 10 feet ***for safety purposes based on the maximum depth at which bedrock and munitions related items are expected to be found at Site 12.***"

c.) Worksheet 18, Figure 17-1, Worksheet 14, Section 14.1, Replicate Sample Collection, will be revised to include the following bullet (also see the response to Specific Comment 15 a.):

"***One replicate sample will be collected in DU1 of the subsurface soil exposure unit (3 to 18 inches bgs) (see Figure 14-1).***"

d.) The following sentence will be added to Worksheet 14, Section 14.1, Well Surveying:

"The ground surface, the top of the protective casing, and the top of each well riser will be surveyed. **In addition, a staff gauge located in the pond will also be surveyed.**"

e.) Worksheet 14, Section 14.1, IDW Management, will be revised as follows.

"The waste solids from sediment sampling will be **containerized** ~~placed back into the pond~~."

Paragraph 2, last sentence.
"Based on the results of the waste characterization, ~~and upon Navy approval,~~ the IDW will be transported and appropriately disposed of off-site at a Navy-approved disposal facility.

19. Comment: WS 14, Section 14.2 Analytical Tasks: Please add the low-flow parameters and water level data to the MEDEP's Electronic Data Deliverable (EDD). Please contact MEDEP's database manager Diana Mckenzie at Diana.m.mckenzie@maine.gov with any questions related to the EDD, or see the guidance on our website at http://www.maine.gov/dep/maps-data/egad/index.html.

Response: Acknowledged. The following will be added to Section 14.2 of the SAP: "***Low-flow parameter measurements and water levels will be included in the MEDEP Electronic Data Deliverable (EDD).***"

20. Comment: WS 15a, Reference Limits and Evaluation Table – Soil: Please check the following analytes' Project Screening Level (PSL). (The number following the compound is the number from the most recent RSLs or MEDEP's RAGs.)

Lead – 40 (RSL)
Methylene chloride – 56 (RSL)
Tetrachloroethene - 0.43 (MEDEP RAGs Table 2)
2,2-Oxybis(1-Chlorobenzene) – 0.46 (RSL)
2-Methylnaphthalene – 23 (RSL)
4-Methylphenol – 61 (RSL)
Dibenzo (a,h)-anthracene – 0.02 (RSL)
Isophorone – 1200 (RSL)
C-5-C8 Alphatics (VPH) 1400 (MEDEP direct contact)

Response: A component of the Site 12 EOD Area RI will be to perform a baseline human health risk assessment in accordance with this SAP. Worksheet 15 human health project screening levels are set at values that will be used for the chemical of potential concern (COPC) screening process for the baseline human health risk assessment. Section F of the January 13, 2010 Maine Remedial Action Guidelines (RAGs) for Soil Contaminated with Hazardous Substances titled NOT APPLICABLE TO SELECTION OF COPCs for Full Risk Assessment states,

"The RAGS should not be used in selection COPCs for a risk assessment conducted in accordance with the Maine "Guidance Manual for Human Health Risk Assessment at Hazardous Substance Sites.""

Therefore, MEDEP RAGs values will not be included in the selection process for human health project screening levels in this SAP.

PSLs will be updated in the SAP and references updated throughout the SAP. The analytes listed above, except for C5-C8 Alphatics (VPH), were reviewed against the May 2012 EPA RSL Table. The C5-C8 Alphatics (VPH) value was verified in the Table 4 of the 2009 "Remediation Guidelines for Petroleum Contaminated Sites in Maine". The values have been revised as follows:

Lead – 400 (RSL)
Methylene chloride – 56 carcinogenic**(RSL), 360/10 noncarcinogenic (RSL) = 36
Tetrachloroethene - 22 carcinogenic**(RSL), 86/10 noncarcinogenic (RSL)= 8.6
2,2-Oxybis(1-Chloro~~benzene~~propane) – 4.6 carcinogenic (RSL)
2-Methylnaphthalene – 230 (noncarcinogenic) (RSL) /10 = 23
4-Methylphenol – 6100 (noncarcinogenic) (RSL)/10 = 610
Dibenzo (a,h)-anthracene – 0.015 carcinogenic (RSL)
Isophorone – 510 carcinogenic (RSL)
C5-C8 Alphatics (VPH) - 1400 (MEDEP direct contact)

21. **Comment:** WS 15b, Reference Limits and Evaluation Table-Groundwater: Please check the follow. The number following the compound is the number from the April 2012 RSLs or MEDEP's MEGs.

Lead – 10 (MEG)
Sodium – 20,000 (EPA)
Methylene Chloride – 1.1
2-Butanone – 400 (MEG ÷ 10)
4-Methyl2-Pentanone 50 (MEG ÷ 10)
Chloroethane – 0.7 (MEG ÷ 10)
Tetrachloroethene – 3.5
2-Methylphenol – 4 (MEG ÷ 10)
4-Methylphenol – 0.4 (MEG ÷ 10)
2,4-Dinitrotoluene – 0.22 (EPA)

Response: A component of the Site 12 EOD Area RI will be to perform a baseline human health risk assessment in accordance with this SAP. Worksheet 15 human health project screening levels are set at values that will be used for the chemical of potential concern (COPC) screening process for the baseline human health risk assessment. Section 4.1 of the July 2009 "Guidance for Human Health Risk Assessments for Hazardous Substance Sites in Maine" states that,

"Regional Screening Levels (RSLs) developed by the Oak Ridge National Laboratory (ORNL) should be used as risk-based concentrations for COPC selection for soil, groundwater, and air."

Therefore, Maine MEG values will not be included in the selection process for human health project screening levels in this SAP.

PSLs will be updated in the SAP and references updated throughout the SAP. The analytes listed above were reviewed against the May 2012 EPA RSL Table. The values will be revised as follows:

Lead – 15 (MCL)
Sodium – No critiera
Methylene Chloride – 9.9 carcinogenic **(RSL), 84/10 noncarcinogenic (RSL) = 8.4
2-Butanone – 4900/10 noncarcinogenic (RSL) = 490
4-Methyl2-Pentanone 1000/10 noncarcinogenic (RSL) = 100
Chloroethane – 21000/10 noncarcinogenic (RSL) = 2100
Tetrachloroethene –9.7 carcinogenic**(RSL), 35/10 noncarcinogenic (RSL) = 3.5
2-Methylphenol – 720/10 noncarcinogenic (RSL) = 72
4-Methylphenol – 1400/10 noncarcinogenic (RSL) = 140
2,4-Dinitrotoluene – 0.2 carcinogenic (RSL)

22. Comment: WS 17, Table 17-1, Soil/Sediment Sampling Strategy:

a.) DU1 – Existing Berm Mound, Interval and Figure 17.1: Please note where the subsurface increments will be taken (i.e., from the mid-point location on the berm wall). They should all be taken from the same relative location so the surface and subsurface ISM value can be compared. If no replicates are collected for the subsurface, then the uncertainty associated with the single subsurface value will need to be considered when removal of the berm is evaluated. MEDEP suggests a replicate be collected for the 12-18" interval to reduce the uncertainty.

b.) DU2C & DU2E, Depth & Figure 17-2A: Subsurface data is warranted in these units unless the UXO clearance is not sufficient to allow sampling below 3 inches. Trenches 7, 8 and 10 completed in these areas detected munitions related items down to depths of 42 inches. This indicates that MC may be present in subsurface soils in the central portion of the site. The groundwater data is important, but may not be conclusive for direct-contact issues for less soluble compounds. The TCRA work plan lists a depth of 2 feet for surface clearance, but that depth is not noted in the reports summarizing the work, so it is unclear whether a 12-18" ISM sample (for example) can be collected at these DUs.

c.) DU2F: This decision unit is not shown or labeled on Figures 11-1, 17-2A and 17-2B. It should be clarified in the text, table and figures that it includes all non-historic berm areas.

d.) DU2F and Figures 17-2A & 17-2B: Based on the clearance work completed at the site MEDEP suggests removing grid E-7 from DU2F, and adding a grid overlapping the F-4 and G-4 area near the entrance to the existing berm. MEC surface items located in that area suggest it is more appropriate in DU2F. Grid E-7 is primarily located on the east side of the perimeter road and is more appropriate in DU3.

e.) DU3 & Figure 17.3: The proposed 210 increments is a rather high number of increments for a single DU. Multi-incremental sampling is typically 30 to 100 aliquots to a sample. MEDEP suggests dividing the DU into 3 sub-units with 90 increments each.

f.) DU4: Again the total number of increments for the sample is too great. MEDEP suggests breaking this into 2 or 3 sub-decision units.

g.) DU4 and Figure 17-3: The table identifies 3 units that are actually located in DU3 (C5, D4, and F7). They appear to have been carried over from the previous DU text, please revise as needed. MEDEP suggests removing grid J-9 and adding grid K-8 to DU4. (Also see comment 22.h.4)

h.) DU5:

1. Prior to establishing sampling depth and number of samples, the Navy needs to determine how deep the pond is and whether it stratifies thermally. One sample might be enough if the pond is shallow and unstratified, but it should probably be a core of the whole water column. If pond is deeper and or stratified then more samples would be needed. Water temperature and dissolved oxygen content data needs to be collected to determine if it is stratified.
2. Sediment cores should also be taken to determine the depth of the sediment before sampling intervals are selected. Typically six inches of sediment would represent 100 years of accumulation in a natural lake or pond ~ 1.5 mm/yr. Since this may not be a natural pond and has material bulldozed into it, then the 0-6 inch layer is probably much younger. Preliminary cores would determine the composition and volume of the material would determine the appropriate sampling depth(s).
3. Section 11.3.1 for DU5 states that: "An additional depth of interest includes 6 to 24 inches below the sediment surface, which may indicated whether munitions-related items are buried in the pond sediment from past disposal activities." However there are no samples proposed from the 6 to 24 inch interval.
4. For the sediment sample M-12 there is text missing from the Location description in the table, please revise it. MEDEP assumes from the text that the sample will be collected from the sediments just upstream of the culvert north of the road, Please clarify the location in the table. MEDEP believes that the area in grids K-8 and L-8 (and perhaps the "upland" portion of K-9 and L-9) are more appropriate for DU4 than for the pond, based on expected future uses of the site and the relative ease of access in the two decision units. Bladed soils in the wetland areas near the pond and east of the road are much less likely to be accessed than the area west of the road. Removing the two discrete soil samples from K-8 would allow an additional sample to be collected in each of the two areas where material was bladed into the pond. Please revise the table and figures to make this change.

i.) DU5, Analytical, Rationale: "Confirm absence of hazardous/fuel constituents." - The rationale needs to be unbiased and the sampling developed accordingly. Please revise sampling rationale and ensure that the sampling was developed to determine the absence/presence of hazardous/fuel constituents.

j.) Note 2: Please note that two drums were found at the site during UXO clearance activities.

Response:

a.) DU1: It is confirmed that surface and subsurface samples are co-located, as indicated in Figure 17-1. A replicate will be added for the 3-18 inch subsurface soil ISM sample (see response to Specific Comment 15 a.).

b.) DU2: Discrete subsurface soil samples will be added and depth interval established (see response to Specific Comment 15 b.).

c.) DU2F: A descriptive tag will be added to Figure 11-1 Decision Units Location Map identifying DU2F. For Figures 17-2A and 17-2B, DU2F was intentionally not included on Figure 17-2A (Localized Berm Areas) and highlighted in Figure 17-2B (Non-Berm Areas) for a clear distinction between the DU2A through DU2E berm areas and the DU2F non-berm area. Therefore, no change will be made to 17-2A; however, for Figure 17-2B, the legend will be clarified to more readily identify DU2F.

d.) DU2F: As per Conference Call of September 19, 2012, the Navy agrees to redistribute the ISM sample points for DU2F to be both representative of the DU and provide adequate coverage; as a result, the southeast corner of the "red square" of DU2 that covers all of the historical berms will be redrawn to follow the perimeter road. A portion of Grids E-7 and F-7 will remain within DU2F; however, the number of increments will be reduced in each grid. The eliminated increments will be redistributed within DU2F such that the total 50 increments will remain the same. Text, figures, and tables will be changed accordingly.

e.) DU3: DU3 has been split into two ISM samples; DU3A and DU3B (see response to Specific Comment 15 c.). Also of note, part of the reason for the 30 to 100 aliquots per ISM sample is to control the soil volume sent to and handled by the analytical laboratory. As per the ISM SOP included in Appendix A, the corer size for sampling can be selected to control the total volume for a given ISM sample.

f.) DU4: See response to Comment 22 e.) above. No changes to DU4 are warranted.

g.) DU4: Worksheet 17, DU4 in the table will be revised to remove the extraneous grid references (C5, D4, and F7). Considering Grid K8 is in the area of the original pond, Grid J9 will not be moved to grid K8.

h.) DU5:

1. Pond stratification: Agree. Worksheet 17 has been revised as follows (Worksheet 14 will also be revised to add water temperature and dissolved oxygen measurements):

   "**Grab surface water sample(s) will** ***be collected following determination of water depth and collection of water temperature readings every foot in the water column to determine if the water column is stratified. If the water column is stratified, collect two grab water samples from both temperature zones at a central location in the pond. If the water column is not stratified, collect one*** ~~Collect a~~ grab surface water sample from central location in the pond and **over the entire length of the water column.** ~~vertically center the sample approximately half way between water surface and sediment surface.~~ Surface water sample must be collected prior to sediment samples to reduce potential turbidity in the sample."

2. Sediment cores: To the extent possible, sediment depth will be determined; however, safety concerning MEC will restrict probing with coring devices. The SAP text will be clarified accordingly.

3. Sediment MEC: As per Conference Call of September 19, 2012, the primary exposure interval for contamination is near surface, particularly for non-MC contaminants if present. Although the potential maximum depth of interest for MEC is estimated to be 6 to 24 inches, this will remain to be seen in the future during MEC investigation. Moreover, information on depth of sediment present is pending. Upon evaluation of the MC RI results, a data gap may remain concerning depth of MC contamination. If so, MC sampling will be considered, as needed in future phases. The SAP will be revised to reflect close coordination with field personnel such that the 6 to 12 inch sample interval can be adjusted in the field as necessary biased to where field observations indicate maximum contamination concentrations may be present.

4. M-12 and DU5 soils: The M-12 description will be revised to describe the location of sample M-12. No change to the DU5 boundaries or soil sample locations will occur at this time. These samples are discrete surface and subsurface soil samples and so if there is a differentiation east and west of the road, it will be apparent following data evaluation and aid in revising the CSM.

i.) Worksheet 17, DU5, Analytical Rationale will be revised as follows:
"Confirm ***presence/***absence of hazardous/fuel constituents"

j.) Note 2 will be revised as follows:

"***Although two 55-gallon drums were identified onsite, h***~~H~~azardous waste constituents are not anticipated ***because similar drums are commonly used at EOD ranges to containerize munitions debris, and*** only construction debris was encountered during previous investigations and no suspect ***staining or*** hazardous waste ***debris*** **(transformer, car parts, oil, sludge** ~~drums/debris~~**)** ***were***~~was~~ identified on the ground surface ***or during trenching operations.***"

23. **Comment:** Section 17.3, Supplemental Geological and Geophysical Investigation: To allow the Navy to collect preliminary geological and geophysical data to drive the investigation, MEDEP provided preliminary comments on this section dated June 18, 2012 via email and they have been resolved, however those comments, responses to comments and associated edits must be added to the final SAP.

Response: Agree that revisions based on MEDEP preliminary comments will be incorporated into the final SAP.

24. **Comment:** Figure 11-1: The steep rocky slope needs to be extended to the south approximately 100 feet along the straight line of trees.

Response: Agree. Figures will be revised based on the recent geologic mapping conducted at Site 12 as part of the fracture trace analysis.

25. **Comment:** Figure 14.4: According to Table 17.1, DU2F, 52 total increments are to be taken however, the figure only shows 50. Please rectify.

Response: Table 17.1 (and the corresponding Section 14 figure) will be revised to the correct number of increments (50).

26. **Comment:** Figures11-1, 17-3, 17-4, & 17-5: The road running north-south east of the pond is labeled as Old Gurnet Road however on the Existing Conditions Figure (1983) shows the road as Princes Point Road. Please confirm the name of the road and correct as necessary.

Response: The name of the road located east of the pond is "former Prince Point Road" which runs along the southern border of the base. Figures will be revised to show the correct road name.

27. **Comment:** Appendix B, Project Screening Level Backup Tables: Please revise as necessary based on revisions in comments 20 and 21 above.

    Response: Agree. A revised back up table will be provided.

28. **Comment:** Appendices D &E, Human Health Risk Assessment Methodology and Ecological Risk Assessment Methodology: Rather than hold up the implementation of the workplan MEDEP will provide comments on these appendices at a later date.

    Response: Acknowledged.

29. **Comment:** Appendix D, Section 1.1.2 Background Screen: Recent draft revisions to the recommended application of the MEDEP PAH background values would indicate that the site-specific background values are most appropriate at Site 12, as the site is relatively undeveloped, and is not paved or located near pavement. For either the MEDEP background data or the NASB dataset, a 95% UCL needs to be calculated and used for comparison to the site ISM data. (The draft reference values will be an upper prediction limit (UPL) which is not comparable to the ISM data) MEDEP can provide the source data needed to obtain the UCL.

    Response: Please see response to comment #13 d) and provide source data as offered.

30. **Comment:** Appendix D, Section 1.2.3, Calculation of Exposure Point Concentrations: "*In order to combine datasets from two or more DUs into a single EU at least 51 percent of chemicals analyzed...*" - To be representative of risks at the site this is too vague a criteria for combining DUs. With the large number of analytes, unless non-detects are excluded, all of the DUs would potentially be combined. The combination of DUs needs to consider detects and should focus on compounds of interest rather than common soil constituents. Otherwise it would be easy to combine two units where a few explosives in soil are very dissimilar but that difference is lost in comparable data for common inorganics.

    Response: The first sentence of the third paragraph of Appendix D, Section 1.2.3 will be revised to read:

    "To determine if ***COPC*** ~~chemical~~ concentrations between DUs are similar side by side box plots will be utilized."

    The last sentence in the third paragraph of Appendix D, Section 1.2.3 will be deleted.

    ~~"In order to combine datasets from two or more DUs into a single EU at least 51 percent of chemicals analyzed in the DUs must have similar (as defined above) concentrations."~~